

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property  
Organization  
International Bureau



(43) International Publication Date  
24 June 2004 (24.06.2004)

PCT

(10) International Publication Number  
WO 2004/053680 A3

(51) International Patent Classification<sup>7</sup>: G06F 5/06

RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW.

(21) International Application Number:  
PCT/IB2003/005797

(22) International Filing Date: 9 December 2003 (09.12.2003)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:  
60/432,756 12 December 2002 (12.12.2002) US

(71) Applicant (for all designated States except US): KONINKLIJKE PHILIPS ELECTRONICS N.V. [NL/NL]; Groenewoudseweg 1, NL-5621 BA Eindhoven (NL).

(71) Applicant (for AE only): U.S. PHILIPS CORPORATION [US/US]; 1251 Avenue of the Americas, New York, NY 10510-8001 (US).

(72) Inventor; and

(75) Inventor/Applicant (for US only): DUTTA, Santanu [IN/US]; 1109 McKay Drive, M/S-41SJ, San Jose, CA 95131 (US).

(74) Common Representative: KONINKLIJKE PHILIPS ELECTRONICS N.V.; c/o LESTER, Shannon, 1109 McKay Drive, M/S-41SJ, San Jose, CA 95131 (US).

(81) Designated States (national): AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT,

(84) Designated States (regional): ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

#### Declaration under Rule 4.17:

— as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii)) for the following designations AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NI, NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VC, VN, YU, ZA, ZM, ZW, ARIPO patent (BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG)

#### Published:

— with international search report  
— before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments

(88) Date of publication of the international search report:  
27 January 2005

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: CONFIGURABLE MEMORY PARTITIONING IN HARDWARE

(57) Abstract: A buffer management system (100) partitions a total memory space (200) into a programmable number of substantially uniform size buffers (220-223). An application communicates the desired number of buffers to the buffer management system (200), then allocates these buffers among the data-transfer paths used by the application. Optionally, multiple uniform-size buffers can be merged to form a single logical buffer. By effecting the partitioning of the total memory space (200) into uniform-size buffers (220-223), the overhead required to manage the multiple buffers is minimized. By providing a selected number of managed buffers to an application, the application is able to allocate buffers as required, without having to be concerned with the details of buffer management.

WO 2004/053680 A3

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 03/05797

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 G06F5/06

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 G06F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, WPI Data

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 226 338 B1 (EARNEST TIMOTHY J) 1 May 2001 (2001-05-01) column 1, line 6 - line 10 column 2, line 1 - line 16 column 3, line 9 - line 23 column 4, line 33 - line 49 column 6, line 15 - line 34 column 6, line 59 - column 7, line 64	1-16
X	US 5 809 557 A (SHEMLA DAVID ET AL) 15 September 1998 (1998-09-15) column 1, line 25 - line 64 column 2, line 45 - column 3, line 51	1-16
X	EP 0 853 283 A (HEWLETT PACKARD CO) 15 July 1998 (1998-07-15) page 2, line 52 - line 56 page 3, line 16 - line 35	1-16
-/--		

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.
- \*&\* document member of the same patent family

Date of the actual completion of the international search

29 November 2004

Date of mailing of the international search report

10/12/2004

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel (+31-70) 340-2040, Tx. 31 851 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

Prins, L

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IB 03/05797

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 6 041 397 A (CHAU VI ET AL) 21 March 2000 (2000-03-21) column 1, line 1 - line 43	1-16
Y	US 2002/129196 A1 (VOLK ANDREW M ET AL) 12 September 2002 (2002-09-12) paragraph '0030!	1-16
A	EP 0 866 406 A (INST OF COMPUTER SCIENCE FORTH) 23 September 1998 (1998-09-23) column 2, line 28 - column 5, line 19	1-16
A	EP 0 545 575 A (AMERICAN TELEPHONE & TELEGRAPH) 9 June 1993 (1993-06-09) abstract	1-16

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IB 03/05797

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6226338	B1	01-05-2001	NONE	
US 5809557	A	15-09-1998	IL 116984 A	26-07-2000
EP 0853283	A	15-07-1998	EP 0853283 A1	15-07-1998
			DE 69727465 D1	11-03-2004
			EP 0862118 A1	02-09-1998
			JP 10232826 A	02-09-1998
			US 6321310 B1	20-11-2001
			US 6336154 B1	01-01-2002
US 6041397	A	21-03-2000	US 5860149 A	12-01-1999
			AU 6169296 A	30-12-1996
			CA 2223890 A1	19-12-1996
			EP 0832457 A1	01-04-1998
			JP 11507749 T	06-07-1999
			WO 9641266 A1	19-12-1996
US 2002129196	A1	12-09-2002	AU 3095901 A	03-10-2001
			TW 518508 B	21-01-2003
			WO 0171482 A1	27-09-2001
EP 0866406	A	23-09-1998	EP 0866406 A1	23-09-1998
EP 0545575	A	09-06-1993	US 5426639 A	20-06-1995
			AU 642830 B2	28-10-1993
			AU 2856292 A	03-06-1993
			CA 2079503 A1	30-05-1993
			EP 0545575 A1	09-06-1993
			JP 6085842 A	25-03-1994